

Message Text

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TAGS: PFOR, ENRG, SP

SUBJECT: U.S./SPAIN COOPERATION IN SOLAR ENERGY

1. DURING MARCH 24-26 VISIT TEMBOURY AND KAIBEL (MARCH 24 ONLY) SIGNIFICANTLY REVISED APPROACH TO SOLAR COOPERATION PREVIOUSLY DISCUSSED. PROPOSED NEW EMPHASIS OF COOPERATION IS SPANISH PLAN TO BUILD PILOT 1.5 MWE SOLAR THERMAL CENTRAL TOWER PLANT AT PROPOSED TEST SITE NEAR ALMERIA. PILOT FACILITY WOULD EMPHASIZE USE OF "STATE-OF-THE-ART" OR CONSERVATIVE TECHNOLOGICAL APPROACH SINCE IT INTENDED SCALE UP THIS UNCLASSIFIED

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PLAN TO 10 MWE FOR USE BY LOCAL UTILITIES IN SMALLER MUNICIPALITIES IN SOUTHERN SPAIN. COST OF 1.5 MWE FACILITY WOULD BE IN EXCESS OF 20 MILLION DOLLARS. PHASE A OF PROJECT HAS BEEN INITIATED BY SIGNING CONTRACT WITH FOUR FIRM CONSORTIUM (INITEC, SENER, TECHNICAS, INTECSA) WHICH TO PROVIDE TECHNICAL SCOPE OF PROJECT HOPEFULLY BY END OF APRIL. TEAM REPRESENTING THESE CONTRACTORS VISITED ERDA MARCH 28 AND IS SPENDING REMAINDER OF WEEK VISITING ERDA CONTRACTORS. TEMBOURY AND KAIBEL PRESENTED ERDA WITH 2 PAGE LIST OF ASSISTANCE DESIRED DURING PHASE A.

2. SPANISH REPS STRONGLY EMPHASIZED URGENT NEED TO DEVELOP INDIGENOUS TECHNICAL CAPABILITY IN SOLAR ENERGY WITH U.S. COOPERATION MOST USEFUL IN SOLAR TOWER DEVELOPMENT BECAUSE OF SIGNIFICANT U.S. WORK IN THIS AREA. INDICATED FRENCH WOULD BE APPROACHED FOR ASSISTANCE IF U.S. NOT FAVORABLY INCLINED TO THIS AREA OF COOPERATION. OTHER AREAS OF SOLAR DEVELOPMENT, ESPECIALLY ASPECTS OF SOLAR HEATING TECHNOLOGY ALREADY ACTIVELY BEING PURSUED BY SPANISH INDUSTRY.

3. TEMBOURY NOT OPTIMISTIC ABOUT BENEFIT TO SPAIN FROM IEA SOLAR ENERGY PROJECTS (PROPOSED TWO 500 KW PLANTS - ONE CENTRAL TOWER, ONE DISTRIBUTED COLLECTOR) TO BE LOCATED AT AN ALMERIA SITE TO BE SELECTED HOPEFULLY EARLY MAY (TEMBOURY REQUESTED U.S. EXPERT ACCOMPANY SPANISH SITE SELECTION TEAM ON MAY 2). TEMBOURY INDICATED IEA PROJECTS TOO ADVANCED FOR EARLY APPLICATION IN SPAIN, BECAUSE OF NEED TO DISTRIBUTE CONTRACT AWARDS TO PARTICIPATING COUNTRIES TOO SMALL A FRACTION WOULD BE AWARDED TO SPAIN# AND DOUBT EXPRESSED ABOUT ABILITY PROCEED RAPIDLY WITH MULTINATIONAL PROJECT. SPANISH DO NOT WISH ALLOCATE ANY TREATY FUNDS TO IEA PROJECT. WE IMPRESSED UPON TEMBOURY HOWEVER NEED FOR SIGNIFICANT SPANISH CONTRIBUTION TO IEA PROJECT IF IF TO BE LOCATED IN SPAIN. SUCH CONTRIBUTION MAY NEED TO BE AT LEAST 30 OF TOTAL PROJECT COSTS (IN UNCLASSIFIED

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CASH OR IN KIND, INCLUDING LAND, TEST FACILITY SERVICES). WE ALSO INDICATED STRONG U.S. INTEREST IN IEA PROJECT. WHILE TEMBOURY INDICATED SPAIN WOULD BE TOUGH NEGOTIATOR ON ITS PERCENTAGE CONTRIBUTION TO IEA PROJECT, HE INDICATED SPAIN WOULD BE PREPARED TO FUND ITS CONTRIBUTION TO IEA PROJECT AS WELL AS PROCEED WITH NATIONAL 1.5 MW FACILITY. BOTH WOULD BE LOCATED AT SAME OR ADJACENT SITES.

4. ERDA REPS INDICATED NEED FOR MUTUALITY OF BENEFITS FOR COOPERATION UNDER TREATY AND DESIRE TO BROADEN COOPERATION TO SEVERAL OTHER AREAS OF SOLAR ENERGY TECHNOLOGY INCLUDING PERHAPS PHOTOVOLTAICS, SOLAR RESOURCE ASSESSMENT, WIND ENERGY, AND BIOMASS CONVERSION. ALSO STRESSED DESIRABILITY OF SOUND PLANNING OF OVERALL GOVERNMENTAL PROGRAMS INCLUDING ANALYSIS OF APPLICATIONS AND NEED FOR SOME EARLY DEMONSTRATIONS OF APPLICABLE TECHNOLOGIES SUCH AS INDUSTRIAL PROCESS HEAT.

5. WHILE HERE TEMBOURY DEVELOPED BRIEF DOCUMENT DESCRIBING OVERALL COOPERATION DESIRED UNDER TREATY. TEXT FOLLOWS IN PARA. 7. WE URGED TEMBOURY TO PREPARE, IN ADDITION, MORE DETAILED DESCRIPTION OF PRESENT AND PLANNED SPANISH NATIONAL SOLAR PROGRAM INCLUDING THE FOLLOWING: (A) SOLAR RESOURCE ASSESSMENT; (B) APPLICATIONS ANALYSIS; (C) DEMON-

STATION PROGRAMS; (D) TEST FACILITIES; (E) RESEARCH ACTIVITIES INCLUDING ANY PLANS FOR A RESEARCH CENTER (IT APPEARS NO PRESENT PLANS EXIST FOR A SINGLE RESEARCH CENTER). WHILE ERDA OF VIEW THAT POLICY EMPHASIS OF COOPERATION ON DESIGN AND CONSTRUCTION OF 1.5 MW PILOT FACILITY WOULD PROVIDE USEFUL ADDITIONAL EXPERIENCE TO U.S. PROGRAM, ESPECIALLY IF DETAILED DESIGN AND CONSTRUCTION PROCEEDS EXPEDITIOUSLY. WE FAVOR A BROADER SPECTRUM OF COOPERATIVE PROJECTS AND ALSO WISH TO ENSURE, TO THE EXTENT POSSIBLE, THAT SPANISH SUPPORT OF THE 1.5 MW PILOT FACILITY DOES NOT THREATEN THE VIABILITY OF THE IEA SOLAR PROJECT.

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6. EMBASSY REQUESTED MEET WITH TEMBOURY AT EARLY DATE TO ASSURE ADDITIONAL DOCUMENT IS BEING PREPARED. FURTHER, ERDA DEPUTY ASSISTANT ADMINISTRATOR FOR INTERNATIONAL AFFAIRS, ANGELO GIAMBUSSO, TO BE IN MADRID, APRIL 3-5 AND PLANS FURTHER DISCUSSIONS WITH EMBASSY STAFF AND TEMBOURY ON PROPOSED COOPERATION.

7. TEXT OF DOCUMENT PREPARED BY TEMBOURY FOLLOWS:

"I. INTRODUCTION --

THE SPANISH DEVELOPMENT HAS SERIOUSLY INCREASED THE ENERGY NEEDS REACHING 'PER CAPITAL' VALUES CONSISTENT WITH OTHER OECD COUNTRIES.

NEVERTHELESS, THE DEPENDENCY ON FOREIGN PRIMARY SUPPLY IS SO HIGH (74 PERCENT) THAT IT VERY SERIOUSLY AFFECTS THE COUNTRY'S ECONOMY. LOCAL RESOURCES OF COAL, HYDRO POWER, AND URANIUM PROVIDE ABOUT ONE-FOURTH OF THE NATIONAL REQUIREMENTS. ON THE OTHER HAND, SPAIN HAS VERY ADEQUATE CONDITIONS FOR SOLAR ENERGY USE DUE TO THE FOLLOWING FACTS:

- IT HAS A VERY HIGH INSOLATION THAT REACHES 3200 HOURS/ YEAR OVER 10 PERCENT OF THE COUNTRY'S SURFACE AND MORE THAN 2500 HOURS ON 54 PERCENT OF ITS AREA.
- THE POPULATION IS BASICALLY CONCENTRATED IN CITIES LEAVING WIDE OPEN AREAS MOSTLY IN SUNNY AND DRY ZONES.
- THE COUNTRY HAS AN INDUSTRIAL CAPACITY AND A POTENTIAL DEMAND BIG ENOUGH TO SUPPORT COMMERCIAL ACTIVITY IN SOLAR EQUIPMENT.
- FINALLY, THERE IS AN INTEGRATED NATIONAL ELECTRICAL NETWORK, 30 PERCENT OF WHICH IS HYDRO-ELECTRIC.

THIS LAST FACTOR PROVIDES A VERY ATTRACTIVE OPPORTUNITY FOR SOLAR ELECTRICAL SYSTEMS THAT COULD PROVIDE ENERGY TO THE NETWORK DURING SUNNY HOURS, USING HYDRO POWER DURING NIGHT HOURS. THIS SIMPLIFIES THE DESIGN, ESSENTIALLY, ELIMINATING THE NEED FOR THERMAL STORAGE.

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FOR THESE REASONS, SPAIN IS DEVELOPING A BROAD AND ACTIVE SOLAR PROGRAM SPONSORED BY THE SPANISH GOVERNMENT AND WITH THE PARTICIPATION OF THE 'CEUTRO DE ESTUDIOS DE LA ENERGIE' UNIVERSITIES, RESEARCH CENTERS, LABORATORIES, AND PUBLIC AND PRIVATE COMPANIES.

AN ENTHUSIASTIC RESPONSE TO THIS PROGRAM IS SHOWN BY MOST OF THE SPANISH POPULATION.

THE CURRENT SPANISH BUDGET ON NEW ENERGY SOURCES FOR 1977 RISES TO 650 MILLION PTS. FOR THE MINISTRY OF INDUSTRY. THE MAJOR PORTION, (90) OF THIS BUDGET IS ALLOCATED TO SOLAR ENERGY DEVELOPMENT. ABOUT AN ADDITIONAL 300 MILLION PTS. WILL BE SPENT BY UNIVERSITIES AND RESEARCH CENTERS IN THE PERIOD.

PRIVATE COMPANIES AND UTILITIES ARE LARGE INVESTMENTS ON BOTH COMMERCIAL AND R&D INVESTIGATIONS. THIS FUNDING IS DIFFICULT TO CALCULATE, BUT A CONSERVATIVE ESTIMATE IS ABOUT 500 MILLION PTS. IN FEBRUARY 1977.

II. COOPERATIVE SCHEMES

COOPERATION COULD BE CONCENTRATED ON PROJECTS, SYSTEM AND APPLICATION ANALYSIS, EDUCATION AND TRAINING PROGRAMS, SOLAR RESEARCH CENTER, TESTING FACILITIES, RESOURCE INVENTORIES, ETC.

THE MODUS OPERANDI MAY BE EXTENDED TO ANY OF THE POSSIBILITIES CONTEMPLATED IN ARTICLE III OF THE TREATY AND SPECIFICALLY TO ACTIONS SUCH AS:

- PROJECT CONSTRUCTION OR TESTING COOPERATION
- EARLY PROJECTS (12 MONTHS)
- LONGER - TERM PROJECTS (YEARS)
- DEVELOPMENT OF TECHNICAL DOCUMENTS AS CALCULATIONS,

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DRAWINGS OR SPECIFICATIONS

- SPANISH PERSONNEL TRAINING
- COMPUTER PROGRAMS

- MATERIALS SPECIFICATIONS
- SPECIFIC MAINTENANCE RECOMMENDATIONS
- PROJECT ORGANIZATION, CONSTRUCTION PRACTICES, QUALITY CONTROL, ETC.

III. 1.5 MWE SOLAR ENERGY ELECTRIC PROJECT IN ALMERIA

WITHIN THE SPANISH SOLAR PROGRAM, THE LARGEST PROJECT IS THE CONSTRUCTION OF A PILOT PLANT THAT WILL PRODUCE ELECTRICITY BY MEANS OF A CENTRAL RECEIVER ON A TOWER

SERVED BY A HELIOSTAT FIELD.

THE INTEREST FOR SPAIN COMES OUT OF THE POSSIBILITY OF FUTURE COMMERCIAL PLANTS, SCALING UP THIS PILOT FACILITY TO ABOUT THE 10 MWE LEVEL. SUCH PLANTS WOULD BE CONNECTED TO THE ELECTRIC NETWORK AND WOULD HELP TO ALLEVIATE THE SPANISH SCARCITY OF RESOURCES FOR ELECTRICAL POWER PRODUCTION.

THE BENEFITS TO THE USA IN COOPERATING IN THE DESIGN AND CONSTRUCTING OF THIS PLANT WOULD BE:

- GAIN EXPERIENCE WITH NEW COMPONENT DESIGNS FOR THERMAL FLUIDS AND HELIOSTATS
- USE OF NEW MATERIALS
- CONSTRUCTION IN A COUNTRY WITH DIFFERENT ECONOMIC CAPACITY AND STRUCTURE
- OPERATION OF A SOLAR-HYDRO HYBRID ELECTRIC PLANT INTEGRATED ON A NATIONAL NETWORK WITH OPTIONAL CONVENTIONAL RESOURCES
- MUNICIPAL MANAGEMENT

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THE AIM OF THIS PROJECT WILL BE TO AVOID SOPHISTICATED TECHNOLOGY TO ALLOW FACILITY OPERATION TO BE UNDERTAKEN BY FUTURE LOCAL MANAGEMENT ORGANIZATIONS. IN THIS ASPECT, IT IS FULLY SEPARATE FROM THE INTERNATIONAL ENERGY AGENCY PROJECT THAT, WITH SMALLER UNITS, IS TRYING TO DEVELOP A MORE ADVANCED SYSTEM FOR FUTURE SYSTEMS EVALUATION.

IV. OTHER SOLAR PROJECTS WITHIN THE US/SPAIN TREATY FRAMEWORK

WITHIN THE BROAD SOLAR ENERGY PROGRAM BEING UNDERTAKEN BY THE SPANISH GOVERNMENT AND RESEARCH AND DEVELOPMENT CENTERS, THERE ARE WIDE AREAS OF MUTUAL INTEREST. SOME OF THE PROJECTS ALREADY IN PROGRESS ARE:

- PTION OF AN INTEGRATED MEASURING SYSTEM TO BE USED ON LOCAL LOW-TEMPERATURE APPLICATIONS
- LOW-TEMPERATURE INDUSTRIAL USES OF SOLAR ENERGY
- SELECTIVE SURFACES AND FILM COATINGS ON FLAT COLLECTORS
- LOW-COST PHOTOVOLTAIC CELLS
- SOLAR TECHNIQUES TO PRODUCE METHANE FROM CITY AND INDUSTRIAL REFUSE
- BIOCONVERSION OF SOLAR ENERGY USING CHEMICAL PROCESSES.
- DESIGN OF A CONSTANT SPEED WIND ELECTRIC GENERATOR.

THESE TYPES OF PROJECTS ARE OF MUTUAL INTEREST TO THE U.S. AND SPAIN, AND COULD BE SUPPORTED UNDER THE TREATY AS COOPERATIVE ACTIVITIES."

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<< END OF DOCUMENT >>

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